Animal Welfare Information Center Newsletter

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Legislation Update

- **S. 734 To amend the Agricultural Act of 1949 to require the Secretary of Agriculture to conduct a study of the economic impact of the use of bovine growth hormone on the dairy industry and the Federal milk price support program, to temporarily prohibit the sale of milk produced by cows injected with bovine growth hormone, and to require that the Secretary of Agriculture issue regulations temporarily requiring records to be kept by producers regarding the manufacture and sale of bovine growth hormone, and for other purposes.**

Introduced on April 1, 1993, by Russell D. Feingold (D-WI) and referred to the Committee on Agriculture, Nutrition, and Forestry. Referred to the Subcommittee on Agricultural Research on April 12, 1993. This act may be cited as the "Bovine Growth Hormone Moratorium Act of 1993."

During the period beginning 30 days after the date of enactment of the Bovine Hormone Moratorium Act of 1993, it shall be unlawful for a person to market for commercial use milk produced by a cow after

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ALSO IN THIS ISSUE...

Trapped in a Guilt Cage

by
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I began entering laboratories in 1985 as an anthropologist might study villages in other cultures. I would "hang out" and become almost a native for weeks and sometimes months at a time, so I could describe the culture of biomedical research. I watched how researchers behaved with animals and with each other, and asked questions about their work in everyday conversations and more formal interviews. In some cases, I was even permitted to do some of the work of technicians and caretakers, from cleaning cages to carrying out experiments. So far, I have studied 15 laboratories and research centers with around 400 principal investigators, veterinarians, postdoctoral and graduate students, research technicians, and animal caretakers.

What prompted me to conduct this fieldwork was the controversy over the propriety of animal research. While this rapidly intensifying debate has led to greater regulation of the use of animals in the laboratory, it struck me that little if any attention has been paid to the impact of experiments on the people who carry them out. It would be naive to think that researchers might not experience some conflict over using animals in experiments.

While most people I studied seemed to have come to terms with their use of animals, many had not. Few people had frequent signs of depression or anxiety, such as nightmares, sleep loss, and increased alcohol consumption, that they attributed to working with animals. However, more moderate and episodic feelings of discomfort were common and were expressed as background uneasiness and guilt. About 20 percent of the interviewees, for instance, compared animal experimentation, however tentatively, to the Holocaust. Uneasiness was particularly noticeable among newcomers; with seasoned workers, it was most common among animal caretakers. It existed among technicians, and was relatively rare among veterinarians and scientists. How did researchers live with whatever uneasiness they felt?

Troublesome Emotions Denied

Open discussion of these feelings was taboo. Scientists, veterinarians, and administrators tended to deny that laboratory workers could be troubled by their use of animals. Uneasiness was not seen as an issue, and was not allowed to intrude on the normal course of work. This attitude was

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made apparent to me in a firsthand way. Invited to speak at a conference of animal researchers, I chose to call my talk, "The Experimenter's Guilt." I was told that my choice was "too controversial" and that "Stress Among Researchers" would be more palatable. A popular journal about laboratory research invited me to publish this talk, but insisted that the term "stress" was too extreme and inaccurate. They preferred the term "uneasiness," which I used.

Soon after its publication, I was asked to speak on this subject to the staff at the research center of a major pharmaceutical company. I was told, however, that I could not use "uneasiness" in the title because it would inflame research directors. They suggested "How Researchers Deal with Their Feelings." To make matters easier, I have decided simply to call future talks "Untitled."

New workers believed they were not supposed to talk about their feelings to anyone. Feelings remained private, extraneous to the "real work" of the laboratory. Individuals believed that their colleagues were better able to handle their feelings, only vaguely aware that many others dealt with the problem in similar ways. Yet within the laboratory culture were unspoken rules and resources for dealing with unwanted emotions and thoughts, despite the silence surrounding this topic.

People most commonly coped by seeing laboratory animals as different from pets, zoo animals, or wild animals. Once the creature was defined as a laboratory animal, certain emotions would not be tapped, making it easier to carry out experiments. Many social forces in the laboratory culture helped to make this definition. Animals became "models" chosen to suit particular experiments. Their cost was listed under "supplies" in grant proposals, and they could be ordered through catalogues of animals specially bred for laboratory use.

Turning Animals Into Objects

As interchangeable and anonymous objects, each animal or an entire cage was identified by a code that might include the date of delivery, the researcher's name, the experiment's number, and the animal's number. These codes were clearly displayed on all cages, and the identification numbers of some animals were marked on their bodies: the ears of mice were hole-punched and the bellies of dogs and primates were tattooed. Unstated rules dictated how people interacted with laboratory animals. Social norms stipulated that they were objects and not pets, and sanctions supported this definition. For example, the chief technician in one laboratory had to tell a worker to stop naming sheep because that made it harder for others to perform the experiments.

Making this definition was easier for researchers than it was for technicians and caretakers. Having taken laboratory courses that used animals in college or medical school, many researchers learned not to make laboratory animals into pets long before starting their first full-time research positions. Instead, animals were transformed into data or silent research collaborators. Lack of direct contact with the animals reinforced the transformation. Researchers, typically, did not routinely conduct experiments and handle animals; they stopped by their laboratories for a brief visit during the day or occasionally performed delicate surgery on animals after they were fully anesthetized. Also, most applied biomedical researchers were primarily interested in answering particular scientific questions, and animal models would be selected on that basis.

Technicians and caretakers found it harder to treat animals as objects because they commonly lacked prior research experience and had frequent and direct contact with the animals. They would learn not to treat them as pets after being shocked by the death of a special animal that they regarded as a friend or partner. While people tried to detach themselves from the animals, they rarely succeeded completely. Some described themselves as "a little desensitized." In the words of one technician: "You have to put up some walls. Sometimes you have to create a distance between yourself and the animal you are working with. But I try occasionally to do some checking to see how big that distance is. I don't want it to become so big that I lose the sense that I'm working with animals."

While most people accepted this detachment as necessary for self-protection, not everyone found it comfortable. One technician, for instance, told me that "it didn't feel right" to stop playing with the primates in her laboratory. But those who did bond closely to laboratory animals were often reminded and even teased about the dangers. At one facility, for example, a technician was called a "problem child" by her peers for this reason. At another facility, in an effort to curtail bonding, a scientist told his technicians to remove the names of animals from cage identification cards because it "looked unprofessional."

Workers still found ways to treat animals as pets and express their affection for them. Technicians and caretakers would single out an animal for a laboratory pet. Often a mouse, rat, or guinea pig—these animals were not experimented upon or at least not sacrificed. In addition to being named, caged singly, fed special foods, and given much attention, they would also sometimes be taught tricks and allowed occasionally to run free in the laboratory. They were safe animals with whom workers could become attached without fear of loss. Affection for animals also resulted in "rescues" where they were taken home by workers who were strongly attached to them. For instance, in all seven dog laboratories studied, staff members had quietly taken home at least one animal in the previous year. And photographs, cartoons, dolls, and other images of animals hung on the walls of laboratories, as constant reminders to workers that they cared about animals and found them interesting.

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Applying Principles Of Aseptic Surgery To Rodents

by
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The 1985 revision of the Public Health Service Guide for the Care and Use of Laboratory Animals ('PHS Guide') (Committee, 1985) and 1985 amendments to the Federal Animal Welfare Act (9 CFR, 1992) both contain provisions requiring aseptic technique for rodent survival surgery. The 'PHS Guide' applies to all live vertebrate animals used in research and, thus, includes laboratory rats and mice. Regulations of the Animal Welfare Act apply to hamsters, guinea pigs, and unusual laboratory rodents, but currently exclude rats of the genus *Rattus* and mice of the genus *Mus*.

Rodents are widely used in biomedical research, as evidenced by 55,074 citations for 1990 and 46,519 citations for 1991 under the Medline (on-line database of the National Library of Medicine) heading "Rodentia." However, only approximately 1.2 percent of the Rodentia citations (741 citations in 1990 and 548 citations in 1991) reported surgical procedures. When Rodentia citations with surgical procedures were subdivided by species of rodent, rats were first with the most listings, mice were second, and guinea pigs were third. Hamsters, gerbils, and other rodents were a distant fourth.

Occasionally, the argument is still made that aseptic technique is not necessary for rodent surgery because mice or rats often survive surgical procedures performed using less than aseptic technique. However, survival alone is not a valid criterion for judgment of the acceptability of a rodent surgical technique. The criterion for acceptability should be the absence of untoward, unplanned alteration of physiological functions or behavior due to perioperative infection. Post-surgical adhesions and subclinical infection can complicate analysis or observation of tissues. Failure to utilize aseptic surgical technique increases the potential for introducing bacteria and activating immune responses in reaction to the bacteria. Recently, responses of rats subjected to aseptic or septic surgical procedure were compared. Although there were no obvious clinical signs in either group of rats, differences were observed in open field behavior, "freezing" behavior, plasma fibrinogen, serum glucose, total white cell count, and wound histology scores (Bradfield, Schachtman et al. 1992). Activation of macrophages in response to intraperitoneal inoculation of bacteria (Bancroft, Schreiber et al. 1989), stimulation of cytokines and activation of B cells by bacterial endotoxins (lipopolysaccharides) (Abbas, Lichtman et al. 1991) , and alterations of other physiological processes by subclinical viral, mycoplasmal, bacterial or parasitological infections (Committee on Infectious Diseases of Laboratory Rats and Mice 1992), are well documented in the literature. It has been documented that use of aseptic surgical technique has increased the success of ovarian transplants in mice and speeded the return to normal following other surgical procedures in mice (Cunliffe-Beamer 1972-73; Cunliffe-Beamer 1990).

A further argument for aseptic surgical technique in rodents is the fact that hamsters and guinea pigs are intolerant to many antibiotics. In these species, antibiotics can selectively destroy gram positive intestinal flora resulting in overgrowth of gram negative organisms and endotoxemia (Wagner 1976; Small 1987). Administration of antibiotics to "protect" against the consequences of poor aseptic technique could increase morbidity and mortality in hamsters and guinea pigs.

Development of protocols for aseptic rodent surgery can challenge the attending veterinarian, principal investigator, and Institutional Animal Care and Use Committee. The challenges arise from several sources. First, the same person often serves as surgeon, anesthetist, surgical technician, and scrub nurse when surgical procedures are performed on rodents. Careful planning is required to assure that all supplies and equipment required to complete the surgical procedure are not only ready for use, but are also placed exactly where they are needed before surgery begins. Second, experimental design frequently requires repetitive surgery, that is, performing the same surgical procedure on individual members of a group of rodents during a single sitting. In repetitive rodent surgery, it may not be feasible to have a new sterile pack of instruments for each rodent. Procedures to decontaminate instruments between each rodent must be developed. Third, the small body size of many laboratory rodents mandates dissecting microscopes and delicate microsurgical or ophthalmic instruments for many otherwise routine surgical procedures.

The 'PHS Guide' defines major survival surgery as "any surgical intervention that penetrates a body cavity or has the potential for producing a permanent handicap in an animal that is expected to recover." The standards of the Animal Welfare Act in part 1.1 similarly define a major operative procedure as "any surgical intervention that penetrates and exposes a body cavity or any procedure which produces permanent impairment of physical or physiological functions." Minor surgeries, by default, are all surgical procedures that do not penetrate a body cavity or produce a permanent impairment of function. However, one should remember that a relatively minor surgical procedure, such as vascular catheterization, can have life-threatening complications if bacteria are introduced into the blood stream .

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The 'PHS Guide' states that "survival surgery on rodents... should be performed using sterile instruments, surgical gloves, and aseptic procedures to prevent clinical infections." The standards of the Animal Welfare Act in part 2, state "...survival surgery will be performed using aseptic procedures including surgical gloves, masks, sterile instruments, and aseptic technique." However, neither document further defines aseptic surgical technique in detail. The primary objective of aseptic surgical technique is to reduce microbial contamination of the incision and exposed tissues to the lowest possible practical level. Items to address during development of aseptic technique for repetitive rodent surgery include (1) selection and sanitation of surgical table and associated equipment, e.g., microscopes, (2) preparation and sterilization of surgical instruments, (3) maintenance of sterility between rodents, (4) decontamination of skin surrounding the incision site, (5) use of surgical drapes, and (6) preparation of the surgeon.

When major survival surgical procedures are performed on non-rodents, 'PHS Guide' and standards of the Animal Welfare Act require a dedicated surgical facility. In this facility, the 'PHS Guide' requires separate areas for performing the surgery, storing supplies and preparing surgical instruments, preparing the animal for surgery, preparing the personnel, and providing intensive care and supportive treatment of post-operative animals. A dedicated surgical facility is not required for major survival rodent surgery by either the 'PHS Guide' or the Animal Welfare Act. A rodent surgical area can be a room or part of a room that is easily sanitized and not used for other activities when rodent surgery is in progress. The area should be subdivided so that there are specific places for cages of rodents awaiting or recovering from surgery, preparing rodents for surgery, and performing the surgery. This approach reduces the potential for contamination of the surgical field by fur, feces and bedding. Before beginning rodent surgery, the laboratory bench or table where the surgery will be performed should be cleaned and disinfected. Quaternary ammonium disinfectants or 70% alcohol are good choices for disinfecting laboratory benches prior to rodent surgery. Laboratory benches in front of open windows, next to doors, or similar locations where air currents and dust are difficult to control should be avoided as rodent surgery tables. Likewise, rodent surgery should not be performed in or in front of an exhaust hood because air and particulates from throughout the laboratory are drawn over the surgical field. A high efficiency particulate absorbent (HEPA) filtered hood can be used as a rodent surgical area if the air flow within the hood does not desiccate exposed tissues. A glove box or plastic bubble can be used to create an isolated "rodent surgical suite" within a laboratory or animal treatment room.

Surgical instruments used in rodent surgery usually have delicate tips that are easily damaged. Autoclavable tip guards are commercially available and should be used to protect tips of instruments. Special instrument trays with rows of soft plastic fingers can be used instead of flat trays to store delicate instruments. The plastic fingers prevent instruments from sliding into each other if the tray is tilted. After use, instruments should be soaked in lukewarm water to remove blood and tissue, washed with a free rinsing neutral pH detergent, rinsed thoroughly, and air dried. A toothbrush can be used to scrub delicate surgical instruments. Before delicate instruments are returned to storage, the tips should be examined, preferably under a microscope, to be certain that the ends meet properly, and grooves should be examined to verify that no blood or tissue remains in grooves. The cutting edge of microdissecting scissors should be examined under a microscope and be tested by cutting a single thread in a gauze sponge or piece of fine suture. Instruments with damaged tips or dull blades should not be used because their use can increase the amount of trauma associated with the surgical procedure.

Methods to sterilize surgical instruments include steam, dry heat, ethylene oxide, chemical sterilants, and radiation (Block 1991). By definition, sterilization means the absence of microbial life, including viable bacterial spores. Steam or dry heat are preferred methods to sterilize surgical instruments. Sterilization should be verified through periodic use of biological indicators manufactured for this purpose. Glass bead sterilizers are a fast way to sterilize unwrapped surgical instruments (Callahan, Fiorillo et al. 1992). However, instruments must be allowed to cool on a sterile surface before use to avoid thermal injury (burning tissues). Instrument packs sterilized by ethylene oxide must be aerated to remove residual gas. Some chemical sterilants, e.g., chlorine dioxide, are corrosive to metals as well as irritating to tissues. Even noncorrosive chemical sterilants can be irritating to tissues. If chemical sterilants are used on surgical instruments, sufficient time must be allowed to achieve sterilization and instruments must be rinsed with sterile water or sterile saline before use. Contact time varies with the chemical sterilant and manufacturer's instructions should be consulted for contact time required to achieve sterilization. Rinse solutions should be changed frequently to prevent contamination by the sterilant.

Quaternary ammonium, iodophor and phenolic disinfectants used to sanitize animal facilities should not be used on surgical instruments. These disinfectants are not sterilants. Alcohol, contrary to popular belief, is neither a sterilant nor a high-level disinfectant (Block 1991; Rutala 1990). Recommendations for selection of disinfectant based on the physical make-up of the instrument and its use have been published (Rutala 1990).

Maintaining sterile instruments when performing repetitive rodent surgery is a challenge. Contamination can be reduced by segregating surgical instruments according to function. Surgical instruments used to incise the skin are placed at one end of the tray. Instruments used in subcutaneous tissues are placed next to the skin instruments. Instruments used within internal cavities are placed next to instruments used in subcutaneous tissues and so on. The tips of the instruments are placed toward the top of the tray. This arrangement places instruments

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used in deep body tissues "off to the side" and minimizes reaching over them to reach other instruments (Cunliffe-Beamer 1983; Cunliffe-Beamer 1990).

Contamination of instruments by aerobic bacterial skin contaminants in repetitive rodent surgery can be reduced by wiping tips of instruments with 70% alcohol and a sterile swab between rodents. Alternatively, a glass bead dry heat sterilizer could be used after the tips of instruments are wiped with sterile saline or water to remove blood or tissue residue. Use of a sterile instrument holder with pockets also reduces potential for contamination because tips of instruments can be tucked in the pocket and covered while the next rodent is prepared for surgery. Even with alcohol wipe between rodents and holder with pockets, a new sterile instrument pack should be used after 4 or 5 individual rodents.

A surgical drape is a sterile cover that is draped over all or part of the rodent. The drape protects against accidental contamination of surgical instruments by providing a sterile "buffer zone" and provides a sterile surface on which to lay exteriorized organs. Surgical drapes for rodents can be made from a variety of materials. Lightweight, clear plastic drapes manufactured for larger animals can be cut in small pieces and steam sterilized between two paper towels. This type of drape conforms to the rodent's body and makes it easy to observe respiration. Opaque disposable paper or cloth drapes make it difficult to monitor respiratory rate of small rodents. In some circumstances, a sterile non-woven surgical sponge can be used to "drape" a small rodent.

Preparation of the incision site is an important part of aseptic technique. If fur is not removed over the incision site and skin is not decontaminated, hair and associated skin bacteria can be carried into deeper tissues. Alternatives for removing fur from rodents include plucking, clipping, shaving, or in selected instances, depilatories. Plucking the fur from an anesthetized mouse or similar-size rodent has many advantages. It is fast and easy and does not leave a stubble. Hair follicles in adult mice are usually in the telogen (resting) phase, and the hair can be removed manually with minimal injury (Sundberg 1993). If fur is removed with clippers, pressing a piece of adhesive tape over the clipped area picks up loose hair that would otherwise migrate into the incision. Use of depilatories should be reserved for situations where complete removal of fur from a very large area of skin is required. If the depilatory remains in contact with the skin for too long, a chemical burn could result. After the fur is removed from the area where the incision will be made, the skin needs to be cleansed and disinfected. In large rodents, e.g., rats or guinea pigs, skin can be washed with soap, rinsed with water, and disinfected with 70% alcohol or a surgical iodine. In small rodents, three applications of 70% alcohol, or two applications of 70% alcohol and one application of surgical iodine are often used to disinfect rodent skin. Sterile gauze sponges or sterile cotton swabs, depending on the size of the rodent can be used to disinfect the skin. Begin at the incision site and work outward in circles of increasing diameter (Bennett, Brown et al. 1990).

It is difficult to generalize about rodent surgery because the "patient" can vary in body weight, from a 1.5 or 2.0 gram new-born mouse to a 500-700 gram rat or guinea pig. The magnitude of this difference on a percent-body-weight basis is equivalent to comparing a 2 or 3 kg cat and a 765 kg horse. Even among rodents, surgical instruments must be matched to the size of the patient. Surgical procedures in small rodents, e.g., young mice, require delicate instruments such as those designed for micro or ophthalmic surgery in order to minimize surgical trauma. Several books contain detailed descriptions of rodent surgical procedures (Waynforth 1980; Cunliffe-Beamer 1983).

Water is not usually withheld from small rodents prior to surgery. The inability of mice and rats to vomit prevents regurgitation of stomach content. The nibbling nocturnal feeding behavior of most small rodents and rapid intestinal transit times combine to eliminate distended digestive tracts as a problem for most laboratory rodent surgery. Thus, withholding food is not common practice prior to many rodents surgical procedures, although guinea pigs are often fasted prior to surgery (Harkness and Wagner 1989).

Hypothermia from anesthesia, wetting a significant portion of the body during preparation for surgery, or cooling of exposed body cavities is a potential problem during any rodent surgery. Decontamination of the skin should be accomplished without soaking the body of the rodent. The degree of hypothermia is influenced by the type and duration of anesthesia (Gardner, Davis et al. 1992) and environmental factors. Heat transfer should be considered when selecting the surgical table. Stainless steel is easy to sanitize, but it conducts heat away from the body. A temperature-controlled small water 'blanket' should be placed under the rodent during prolonged surgical procedures. A cork board, a plastic tray, or a few paper towels can be placed under the rodent to minimize heat transfer during short procedures. Post-operative care should include an external heat source while the rodents recover from anesthesia. The heat source should be positioned so that the rodents can move away from it as they recover from anesthesia. An electric light (50-75 W bulb) suspended over one end of the cage is a very simple heat source for rodents recovering from anesthesia.

In summary, when aseptic surgical technique is not practiced, infection can be expected. These infections are often subclinical in rodents; nevertheless, adverse physiological effects have been demonstrated. Preventing post-surgical infection by using aseptic technique improves the quality of life for the rodent and eliminates a source of uncontrolled variation in research data.

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9 Code of Federal Regulations. Chapter 1, Subchapter A-Animal Welfare.

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HELP! New Environmental Enrichment Publication

The United States Department of Agriculture, Animal Welfare Information Center (AWIC), located in the National Agricultural Library, is working in cooperation with the Universities Federation for Animal Welfare to produce a comprehensive bibliography on environmental enrichment for laboratory species other than nonhuman primates. Due to the varied terminology used to describe enriched environments and environmental enrichment strategies, AWIC is requesting assistance in gathering reprints, book chapters, articles, etc., that are relevant to environmental enrichment to be included in the bibliography. Contributors will receive a copy of the finalized bibliography free of charge.

Materials may be sent to:

Animal Welfare Information Center
National Agricultural Library
United States Department of Agriculture
10301 Baltimore Blvd.
Beltsville, Maryland 20705-2351
(301) 504-5174

Internet address: AWIC@NALUSDA.GOV

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It was also important for people to learn to cope with the death of animals. Novices were usually eased and coached into killing their first animals. Sometimes long before they did their own killing, they observed others doing it matter-of-factly. More experienced people almost never cajoled or pushed newcomers to kill and waited until they seemed "ready" to do it. Still, certain types of sacrifice were contrary to the novice's "instincts," such as slamming rodents against the bench or cutting off their heads, and this required special teaching. Newcomers were reassured that, if done correctly, the death was quick and painless, regardless of the particular method they used. For example, after breaking the necks of mice, new workers were often troubled by animal movements that looked like suffering. Someone more senior would usually explain to the novices that these movements were only "muscle spasms."

Rituals Help Workers To Cope

For some people, it was important not to see death as just another task in the day because it would quickly become mechanical, especially in laboratories that conducted experiments like factory assembly lines where the individuality of animals was lost. As one researcher said, "It doesn't mean that we're callous about killing them, but there's not really a second thought for that animal as an individual." Death could become merely the final step in the protocol, signifying noxious tasks such as disposing of corpses and more pleasant associations such as going home for the day. In a few laboratories, workers followed certain rituals when killing animals, giving death special meaning. In one case, the scientist asked her graduate students and technicians to observe a minute of silence before sacrificing animals. In another laboratory, a technician privately recited a prayer each time she killed an animal, asking that its death be forgiven. Some laboratories made memorials to commemorate "favorite" animals that died.

Yet for most people, using the term "sacrifice" was the primary device for giving meaning to death. Journals and grant agencies prohibit use of this term, and some individuals described it as an inappropriate euphemism, but it did indeed mean something special to many research workers. "'Killing' connotes no purpose, while 'sacrifice' connotes there is a reason," noted one technician. Similarly, an investigator explained to me that "sacrifice" was different from "wanton murder" described in detective novels; the former had a larger, worthwhile aim while the last was pointless. Besides "sacrifice," there were other terms with less meaning that shielded people from the harshness of death. Animals were "dispatched," "terminated," "cervically dislocated," "exsanguinated," "decapitated," or "put down," while whole rooms were "depopulated" or simply "cleaned."

People also acquired a vocabulary that aggressively framed their actions toward animals, reinforcing the image of animals as objects. People injecting animals were "shooters" and their injections were "sticks." "Guns" were syringes attached to devices like pool cues that reached into cages, and "torture chambers" were devices to restrain mice. Animals were labeled according to their experimental purpose: there were "controls," "recipients," "donors," "carriers," "bleeders," "breeders," "junk," or simply "X-animals." Even the very term "experiment" was infrequently used; people more often referred to a "preparation" or "project." And the subjective term "suffering" was deliberately avoided in favor of the more neutral "distress."

The Scientist As 'Hunter'

Rationalizing the use of animals in science was also a mainstay in the coping skills of researchers. People in laboratories saw little difference between animals used in experiments and those killed for food and clothing. A few compared it to hunting, which they saw as acceptable if animals were eaten rather than killed merely for recreation. As one researcher said of his hunting: "I do it strictly for the meat – from the rabbits, to pheasants, to ducks, to geese. I've had opportunities to shoot bear, but I haven't because bear meat isn't good to eat and I can't see killing something that I can't use personally." I was frequently reminded that most laboratory animals were bred for research, so they knew of no other existence. And when former pets and strays were obtained from shelters where they would have been killed "wastefully," their use in experiments was seen as giving the animal's life and death added purpose.

For the most part, though, people did not have elaborate moral justifications for their use of animals. Instead, many of them appeared ethically inarticulate. Predictably, scientists and research technicians saw scientific and medical goals as moral imperatives to do their work. Caretakers justified their work with animals by ensuring that they could not be better treated, giving the animals enough love and attention in their last days so they could experience what it was like to be loved as pets. For some workers this was almost an addiction. People spoke about being unable to quit because they were afraid that no one else could be hired that would be as dedicated as they were to the welfare of laboratory animals.

I also observed a different way of coping among those who felt "animal activists" seriously threatened biomedical research. Some scientists have started a countermovement to educate the public about the need to use animals in science. Part of this campaign has been to denounce activists as dangerous and evil because medical advances would halt if they succeeded in preventing animal experiments. By demonizing those strongly opposed to animal research, the charge of immorality levelled at researchers was reversed.

Finally, researchers had to learn to manage the occasional sarcastic remark, heated argument, or blunt criticism encountered when discuss-

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ing their work with lay people. New workers were often disturbed to be called "mouse murderers" and discovered that conversations about animal experimentation quickly degenerated into a "ping pong" of polarized opinions. Scientists, though, were less likely than technicians or caretakers to be put in this position because as physicians or academics they could talk about their work without mentioning animal experimentation. Also, their social networks usually included many people sympathetic to biomedical research. Those not in this position would sometimes, out of frustration, carefully avoid mentioning animal experimentation by telling people that they "did cancer research" or "worked at Boston General Hospital." Others would assess whether conversations were likely to become "shouting matches," gradually releasing more information about their use of animals as long as the unfolding talk seemed safe to them. Some also told people that they owned pets themselves, perhaps to suggest that they were hardly insensitive and heartless scientists.

While these coping devices certainly made it easier for many people to conduct experiments on animals, it is not clear whether these adjustments should be encouraged. There are two lines of thinking. Some people argue that by coping in this manner, there will be an ethical blunting or a coarsening of the moral sensitivities of researchers. Others are more struck by the significance of the conflicts that prompt defensive behavior. The surfacing of these conflicts among researchers may be due to the diffusion into the laboratory of society's heightened awareness of how animals should be viewed and treated. Coping devices will be called out when humanity's standards clash with traditional scientific practice. This is cheering to some who see this as a willingness to pay more attention to humanitarian ideals in animal experimentation. ■

Animal Alternatives Research Grants....

• ETHICAL RESEARCH GRANTS AND FELLOWSHIPS

The International Foundation for Ethical Research (IFER) is seeking applicants for the 1994 grants program. IFER funds research seeking viable, scientifically valid alternatives to the use of live animals in research, testing, and teaching. Areas of interest include tissue culture, bacteria cultures, protozoan studies, gas chromatography, radioimmunoassay, etc. Organizations and individuals from all over the world are eligible to apply. For more information contact:

John Hughes, Executive Director
International Foundation for Ethical Research
53 West Jackson Blvd.
Suite 1552
Chicago, IL 60604
Tel (312) 427-6025 or (800) 888-6287
Fax (312) 427-6524

• FUNDING FOR RESEARCH TO DEVELOP ALTERNATIVES

The American Fund for Alternatives to Animal Research (AFAAR) is seeking applicants for its animal alternatives funding program. For more information contact:

Dr. Ethel Thurston
AFAAR
175 W. 12th St., No. 16-G
New York, NY 10011-8275

• ALTERNATIVES IN ANIMAL EFFICACY AND SAFETY TESTING

The Procter & Gamble Company has announced a call for research proposals for alternatives in animal efficacy and safety testing. Proposals will be accepted from any academic or nonprofit medical institution. Preference will be given to proposals likely to result in important reductions in usage of or distress to animals in testing areas of mutual interest to the scientist and Procter & Gamble. The program will provide funding of up to a maximum of $50,000 per year for a period of up to 3 years for each award. Deadline for applications is September 1, 1993. For further information contact:

Animal Alternatives Research Program
Miami Valley Laboratories
Procter & Gamble Company
P.O. Box 398707
Cincinnati, OH 45239-8707
Fax (513) 627-1153

• HASTINGS CENTER FELLOWSHIP, INTERN AND GRANTS PROGRAM

The Hastings Center has a number of programs available for students; academic, medical or legal professionals; or journalists who have a serious interest in pursuing directed or independent study of bioethical issues relating to animal welfare or other fields of scientific concern. For more information contact:

Director of Education
The Hastings Center
255 Elm Rd.
Briarcliff Manor, NY 10510
Tel (914) 762-8500

• ALTERNATIVES TO ANIMAL TESTING

The Bristol-Myers Squibb Company is committed to reducing its reliance on animal testing methods. In 1983, the company established a department dedicated to the development of non-animal test methodologies. For more information on the grants program, contact:

Director, Corporate Contributions
Bristol-Myers Squibb Company Contributions Program
345 Park Ave., 43rd Floor
New York, NY 10154-0037
Tel (212) 546-4000

Legislation cont'd from p.1

the cow was injected with bovine growth hormone. Persons who sell or inject hormone into a cow shall prepare and maintain records that comply with regulations issued by the Secretary. Regulations issued shall require records to describe the quantity and source of bovine growth hormone, date on which the hormone was obtained and the identity of each person to whom the hormone was sold or distributed, the cows into which any portion was injected and each person who has an operator or ownership interest in the cows. The penalty for violations of the act will be set at $1,000.

- **S. 735 To amend the Federal Food, Drug and Cosmetic Act with respect to the labeling of milk and milk products, and for other purposes.**

Introduced on April 1, 1993, by Russell D. Feingold (D-WI) and referred to the Committee on Agriculture, Nutrition, and Forestry. Referred to the Subcommittee on Agricultural Research on April 12, 1993. This act may be cited as the "Bovine Growth Hormone Milk Labeling Act."

Section 403 of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 343) is amended by adding that if milk is intended for human consumption, is produced by cows that have been injected with bovine growth hormone, or has been commingled with milk produced by such cows, then the milk label shall bear the statement "This milk was produced by cows injected with bovine growth hormone." Section 512A requires that a person that sells growth hormone, purchases the hormone, distributes the hormone, or injects the hormone shall prepare and maintain records describing the quantity and source of bovine growth hormone, date on which the hormone was obtained, and the identity of each person to whom the hormone was sold or distributed, the cows into which any portion was injected, and each person who has an operator or ownership interest in the cows.

- **S. 736 To amend the Agricultural Act of 1949 to require the Secretary of Agriculture to reduce the price received by producers for milk that is produced by cows injected with bovine growth hormone, and for other purposes.**

Introduced on April 1, 1993, by Russell D. Feingold (D-WI) and referred to the Committee on Agriculture, Nutrition, and Forestry. Referred to the Subcommittee on Agricultural Production on April 12, 1993. This act may be cited as the "Bovine Growth Hormone User Assessment Act."

Section 204 of the Agricultural Act of 1949 (7 U.S.C. 1446e) is amended to include a new subsection in which beginning January 1, 1994, the Secretary shall provide for a reduction in the price received by producers who inject cows with bovine growth hormone. The amount of reduction in price received by producers shall be the amount, determined by the Secretary, that is equal to the increased cost of purchasing milk and the products of milk as the result of the injection of cows with bovine growth hormone. Identical bill H.R. 1905.

- **S. 367 To amend the Packers and Stockyards Act of 1921 to make it unlawful for any stockyard owner, market agency, or dealer to transfer or market nonambulatory livestock, and for other purposes.**

Introduced on February 16, 1993, by Daniel Akaka (D-HI) and referred to the Committee on Agriculture, Nutrition, and Forestry. Referred to the Subcommittee on Agricultural Research on March 15, 1993. This act may be cited as the "Downed Animal Protection Act of 1993."

It shall be unlawful for any stockyard owner, market agency, or dealer to buy, sell, give, receive, transfer, market, or hold nonambulatory livestock unless the livestock has been humanely euthanized. "Humanely euthanized" means to kill an animal by mechanical, chemical, or other means that rapidly and effectively renders the animal insensitive to pain. Identical bill H.R. 599.

- **S. 340 To amend the Federal Food, Drug and Cosmetic Act to clarify the application of the act with respect to alternate uses of new animal drugs and new drugs intended for human use, and for other purposes.**

Introduced on February 4, 1993, by Howell Heflin (D-AL) and referred to the Committee on Labor and Human Resources.

Congress finds it is sometimes necessary for veterinarians to use an approved animal drug or approved drug intended for human use in a manner that is not in accordance with the label of the drug, particularly if the health of an animal is immediately threatened, and if suffering or death would result from failure to provide effective treatment. The purposes of the act are to permit veterinarians to use an approved animal drug, or approved drug intended for human use, for therapeutic purposes in animals in a manner that is not specified on the label of the drug, and if the veterinarian administering the drug possesses the professional training and medical judgment to administer drugs.

- **S. 298 To amend title 35, United States Code, with respect to patents on certain processes.**

Introduced on February 3, 1993, by Dennis DeConcini (D-AZ) and referred to the Committee on the Judiciary. Referred to the Subcommittee on Patents, Copyrights and Trademarks on March 5, 1993. Referred to the Committee on Judiciary and ordered to be reported on May 6, 1993.

A "biotechnological process" is defined as any method of making or using living organisms, or parts thereof, for the purpose of making or modifying products, including recombinant DNA, recombinant RNA, cell fusion including hybridoma techniques, and other processes involving site-specific manipulation of genetic material.

cont'd next page >

Whoever without authority imports into the United States or sells or uses within the United States a product which is made using a biotechnological material which is patented in the United States shall be liable as an infringer if the importation, sale, or use of the product occurs during the term of such patent. Related bill H.R. 760.

- **S. 21 To designate certain lands in the California Desert as wilderness, to establish Death Valley, Joshua Tree, and Mojave National Parks, and for other purposes.**

Introduced on January 21, 1993, by Dianne Feinstein (D-CA) and referred to the Committee on Energy and Natural Resources. Referred to the Subcommittee on Public Lands and National Parks on January 22, 1993. Hearings held on April 27, 1993. Committee on Energy and Natural Resources requested executive comment from Department of Agriculture, Department of Justice, and Office of Management and Budget on April 28, 1993. This bill may be cited as the "California Desert Protection Act of 1993."

Congress finds that wilderness is a distinguishing characteristic of the public lands in the California desert, one which affords an unrivaled opportunity for experiencing vast areas of the Old West essentially unaltered by people's activities, and which merits preservation for the benefit of present and future generations. The wilderness values of desert lands are increasingly threatened by and especially vulnerable to impairment, alteration, and destruction. Preservation of desert wilderness necessarily requires the highest forms of protective designation and management. Sections 104 and 207 outline grazing privileges for domestic livestock.

- **H. CON. RES. 34 Calling for a continued United States policy of opposition to the resumption of commercial whaling, and otherwise expressing the sense of the Congress with respect to conserving and protecting the world's whale, dolphin, and porpoise populations.**

Introduced by Gerry Studds (D-MA). Passed by House on February 16, 1993. Referred to the Senate Committee on Foreign Relations on March 2, 1993, and reported by Claiborne Pell (D-RI), without amendment. Measure passed Senate on May 4, 1993.

Be it resolved by the House of Representatives and the Senate Concurring that United States policy: should promote the conservation and protection of whale, dolphin, and porpoise populations; should work to strengthen the International Whaling Commission; and should support the establishment of appropriate international sanctuaries where whaling is prohibited.

- **H.R. 305 To establish a national policy for the conservation of biological diversity; to support environmental research and training necessary for conservation and sustainable use of biotic natural resources, to establish mechanisms for carrying out the national policy and for coordinating related activities; and to facilitate the collection, synthesis, and dissemination of information necessary for these purposes.**

Introduced on January 5, 1993, by John Edward Porter (D-IL) and referred jointly to the Committees on Science, Space, and Technology and Merchant Marine and Fisheries. Referred to the Subcommittee on Technology and Competitiveness on January 14, 1993. Referred to the Subcommittee on Environment and Natural Resources on January 29, 1993. This act may be cited as the "National Biological Diversity Conservation and Environmental Research Act."

The purposes of the act are to conserve biological diversity, require assessment of effects on biological diversity in all environmental impact statements, to collect, synthesize, and disseminate adequate data and information for understanding biological diversity, to support basic and applied research, and to promote a better understanding of the importance of biological diversity.

- **H.R. 833 To amend the National Wildlife Refuge System Administration Act of 1966 to improve the management of the National Wildlife Refuge System, and for other purposes.**

Introduced on February 4, 1993, by Sam Gibbons (D-FL) and referred to the Committee on Merchant Marine and Fisheries. Referred to the Subcommittee on Environment and Natural Resources on February 18, 1993.

This act may be cited as the "National Wildlife Refuge System Management and Policy Act of 1993." The purposes of the act are as follows: to reaffirm the provisions of the act that authorizes the Secretary of the Interior to permit compatible fish and wildlife-oriented public recreation, such as hunting, fishing, and wildlife observation on refuges; to improve the administration and management of the System; to establish comprehensive planning for the System and individual wildlife refuges of the System; and to provide interagency coordination in maintaining refuge resources.

- **H.R. 273 To deem the Florida Panther to be an endangered species under the Endangered Species Act of 1973.**

Introduced on January 5, 1993, by Bill McCollum (R-FL) and referred to the Committee on Merchant Marine and Fisheries. Referred to the Subcommittee on Environment and Natural Resources on January 29, 1993.

The Secretary of the Interior shall include the species known as the "Florida Panther" in the list published under section 4(d) of the Endangered Species Act of 1973 (16 U.S.C. 1533(d)). ■

Cynthia Smith, Info. Specialist

- **BEAR NECESSITIES - THE VIDEO**

Environmental enrichment for captive polar bears.

All of the adult polar bears kept in the British Isles exhibit stereotypic behaviors at one time or another. While they may pace up and down or swing their heads from side to side, it is not simply a case of their being driven mad or psychotic by their conditions.

The Universities Federation for Animal Welfare (UFAW) has been studying captive polar bears for the past 3 years. It was found that stereotypic behaviors vary greatly between individual bears as well as seasonally, yet wild bears and captive-born cubs do not show such behavior. This suggested that if appropriate conditions and management were provided, such repetitive behaviors may be avoidable. The video *Bear Necessities* illustrates such repetitive behaviors and offers practical suggestions for reducing them and creating a more complex and stimulating environment for the bears. This can be achieved by giving them more choice and control over their environment. Freezing food in blocks of ice meant the bears had to spend time manipulating and working to get their meal; scattered and hidden foods required sensory, physical, and mental effort throughout the day; and a variety of objects such as traffic cones and barrels stimulated play and the setting up of games. Pits of sand or bark gave the bears an alternative to hard concrete in which they foraged, dug, or built day nests to rest in.

As polar bears are known to be more active in captivity than in the wild, it is important that all zoos modify their existing facilities and feeding regimes to enable bears to exhibit more of their behavioral repertoire. If polar bears are to be kept in captivity in the future, enclosures need to be designed to maximize choice and control for the occupants. Stimulating captive polar bears to forage, explore, play, and build day nests is more beneficial for the animals and more interesting to the public.

The *Bear Necessities* video is available in VHS or American NTSC formats, in English at £15/US$40 each (including package and postage). A German version is in preparation.

For further information please contact Victoria Taylor at:

Universities Federation for Animal Welfare
8 Hamilton Close, South Mimms,
Potters Bar, Herts EN6 3QD, UK
Tel: 0707 658202 Fax: 0707 649279

- **ENVIRONMENTAL ENRICHMENT: ADVANCING ANIMAL CARE**

This video describes behavioral needs of animals in captivity and gives practical suggestions for improving their lives. It includes a straightforward guide to carrying out an enrichment project and is intended for all those responsible for the care of animals in captivity - from animal technicians, pet owners and stock handlers to zookeepers.

The video won an International Visual Communications bronze award in 1992.

The Environmental Enrichment video is available in VHS and American NTSC formats in English and German. A Chinese version is in preparation. The videos cost £15/US$40 each including postage & packing.

For further information or orders please contact Victoria Taylor at:
Universities Federation for Animal Welfare
8 Hamilton Close, South Mimms, Potters Bar, Herts EN6 3QD UK
Tel: 0707 658202 Fax: 0707 649279

- **CALL FOR PAPERS**

Animal Welfare
The UFAW Journal
ISSN 0962-7286

The first issue of the second volume of *Animal Welfare* is available: major articles include *Social Manipulation of Captive Primates, Tamarin Responses to Fecal Scents, The Human-animal Relationship in Farming, Behavior of Rehabilitated Hedgehogs and Laying Cages for Hens: Ban or Modify?* The short communication is *Preference Tests With Rodents.*

This recently established publication brings together the results of scientific research and technical studies related to the welfare of animals kept on farms, in laboratories, in zoos, as companions, or living in the wild. Subscription rates remain at £40/US$80 for UFAW individual members and £50/US$100 for others and libraries. The UFAW corporate membership scheme has been extended to include options which entitle these members to receive *Animal Welfare* at a new reduced rate - please apply for details. Back *copies of volume one with an index are available.*

Animal Welfare includes refereed articles and short communications, reports and comments, book and video reviews, and a correspondence column.

Manuscripts with implications for improving the welfare of any animals are considered. Sample packs with comprehensive instructions for authors are available on request.

For further information please contact Victoria Taylor at:

Universities Federation for Animal Welfare
8 Hamilton Close, South Mimms, Potters Bar, Herts EN6 3QD, UK
Tel: 0707 658202 Fax: 0707 649279

- **AAV ANNUAL CONFERENCE TRADITION FOR QUALITY CONTINUES**

"The Tradition Continues" for high-quality avian educational experiences at the upcoming August 31 - September 4, 1993, Annual Conference sponsored by the Association of Avian Veterinarians (AAV). Registrants can continue their education in this rapidly growing field, "in the tradition of the Old South," at the beautiful Opryland Hotel in Nashville, Tennessee, site of this year's event.

With six programs offered, there is an extensive variety to choose from for veterinarians, technicians, students, and aviculturists. There are separate daylong programs specifically for technicians and aviculturists. The conference includes numerous introductory programs, a core seminar for those pursuing the new American Board of Veterinary Practitioners avian specialty examination, and scientific papers and case studies reflecting the latest research and experience available. The areas targeted include therapeutics, diagnostics, parasitology, surgery, and dermatology. Also, there are topics for non-psittacine medicine and surgery, the respiratory system, nutrition, and an entire day devoted to ratites. A specific program for technicians is included, and this year's practical labs offer new and updated

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topics by instructors known internationally for expertise in their specialty.

Information on the entire program – registration, speakers and topics, and social functions offered – is available for review in a comprehensive booklet which can be obtained free of charge from the AAV Conference Office. AAV members and those who previously requested information will automatically receive this booklet in June. For the quickest response in receiving yours, send name and address by fax to 303-759-8861. Or call 303-756-8380 or write to 2121 So. Oneida St., Ste. 325, Denver, CO 80224.

• WORLD CONGRESS ON ALTERNATIVES AND ANIMAL USE IN THE LIFE SCIENCES: EDUCATION, RESEARCH, TESTING

The first World Congress on Alternatives and Animal Use in the Life Sciences: Education, Research, Testing will be held in Baltimore, Maryland, USA, November 14-19, 1993. Planned by an international consortium of scientists, the purpose of the Congress is: (1) to review progress made toward refining, reducing and replacing the use of animals in education, research and safety testing; (2) to develop a realistic understanding of the current validity and status of alternatives; (3) to illuminate the existing tripartite approach to the advancement of science and understanding of biology and disease (incorporating animal use, clinical studies and *in vitro* methods); and (4) to develop a dialogue between the animal protection movement and the scientific community.

The Congress program will address issues of interest to an international audience of scientific researchers, corporate scientists, government regulators, educators, and the public. Topics to be covered in plenary lectures include History of Animal Use, Safety Testing, and The Concept of Alternatives. Platform presentations and workshops will encompass topics as diverse as Alternatives in Genotoxicity and Carcinogenicity, Pain Assessment and Pain Control, and Animals & Humans as Research Subjects: Similarities and Differences. Point/Counterpoint sessions will include both scientific (Basic Cytotoxicity vs. Cell Target Toxicity) and policy (Need for Animal Data vs. Need for Alternative Data in Risk Assessment) issues. Scientific poster presentations and trade exhibitions will be held throughout the sessions.

The format of the Congress will provide an ideal opportunity for scientists, government officials, and lay persons interested in these issues to discuss the current status of animals and alternatives with leading researchers and theorists in the field. To register or be placed on the Congress mailing list, please contact the World Congress Coordinator, Office of Continuing Education, Johns Hopkins Medical Institutions, 720 Rutland Avenue, Turner 20, Baltimore, MD 21205-2195 USA (Tel. 410-955-2959/0807fax). Electronic mailing addresses are:

BITNET: congrs93 @ jhuhyg.bitnet
INTERNET: congrs93 @ jhuhyg.sph.jhu.edu

• NATIONAL ANIMAL WELFARE WORKSHOPS

National Institutes of Health, Office of Extramural Research, Office for Protection from Research Risks Workshops

Southwestern Region

TOPIC: "THE PRESENT AND FUTURE USE OF FARM ANIMALS IN BIOMEDICAL RESEARCH AND EDUCATION"
DATES: September 27 (all day) and September 28 (until noon), 1993
LOCATION: Oklahoma City Hilton Northwest
2945 N. W. Expressway
Oklahoma City, OK 73112
Telephone: 405-848-4811
Toll-Free: 1-800-445-8667
Fax: 405-842-4328
SPONSOR: The University of Oklahoma Health Sciences Center
REGISTRATION: Ms. Marilyn Perry
Assistant to Director for Compliance
Division of Animal Resources
BMSB/Room 203
The University of Oklahoma Health Sciences Center
Oklahoma City, OK 73190
REGISTRATION FEE: $140; Graduate Students and Post-Docs $90.

***

TOPIC: "USDA OPEN FORUM ON FARM ANIMAL ISSUES UNDER THE ANIMAL WELFARE ACT"

This workshop will follow the workshop sponsored by the Oklahoma Health Sciences Center. Please use the same contacts as above.
DATES: September 28 (afternoon) and September 29 (all day), 1993
SPONSOR: USDA/Regulatory Enforcement and Animal Care
REGISTRATION: Ms. Marilyn Perry
REGISTRATION FEE: None

Southeastern Workshop

TOPIC: To Be Announced
DATES: December 2-3, 1993
LOCATION: The Monteleone Hotel
214 Rue Royale
New Orleans, LA 70140
Telephone: 1-800-535-9595
Fax: 504-528-1019
SPONSORS: Louisiana State University Medical Center
Xavier University of Louisiana
REGISTRATION: Mrs. Melinda O. Rapp
Division of Animal Care
Louisiana State University
Medical Center
1542 Tulane Avenue
New Orleans, LA 70112
Telephone: 504-568-6090
Fax: 504-568-4843

For further information concerning these workshops or future NIH/OPRR Animal Welfare Education workshops, please contact:

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Mrs. Roberta Sonneborn
Executive Assistant for Education
Division of Animal Welfare, OPRR
National Institutes of Health
9000 Rockville Pike
Building 31, Room 5B62
Bethesda, MD 20892
Telephone: 301-496-7163
Fax: 301-402-2803

• FOOD AND DRUG ADMINISTRATION WORKSHOPS

* Accelerated Approval Strategies, Boston, MA, July 15, 1993
* Device Regulation Priorities in 1993, Boston, MA, July 15, 1993
* Orphan Drug Strategies & Implementation, Boston, MA, July 16, 1993
* Accelerated Approval Strategies, San Diego, CA, August 11, 1993
* Device Regulation Priorities in 1993, San Diego, CA, August 11, 1993
* Orphan Drug Strategies & Implementation, San Diego, CA, August 12, 1993
* Good Clinical Practice, Washington, DC, September 8-10, 1993
* Treatment IND Strategies, New York, NY, September 22, 1993
* Orphan Drug Strategies, New York, NY, September 22, 1993
* Marketing Biotechnology, New York, NY, September 22, 1993

For more information contact:
BioConferences International, Inc.
Registration Department
4405 East West Highway, Suite 503
Bethesda, MD 20814
Phone: 301-652-3072
Fax: 301-652-4951

• NORMAL AND ABNORMAL BEHAVIOR IN DOMESTIC LIVESTOCK

This 43-minute videotape was produced through a cooperative agreement between the Department of Animal Sciences at Purdue University and the National Agricultural Library's Animal Welfare Information Center. The video examines normal and abnormal behavior in domestic livestock and poultry used in research and the causes of these problems. Practical solutions are offered that may help to eliminate or alleviate these behaviors. The video is available for loan through the interlibrary loan program of the National Agricultural Library (phone (301) 504-2994 to reserve audiovisuals). For more information about the video, you may contact Brenda Coe at Purdue University at (317) 494-8022. ■

Upcoming Meetings...

Science Innovation '93, The Conference on New Research Techniques, August 6-10, 1993. Boston, MA. Contact: (202) 326-6462.

Association of Avian Veterinarians, 14 AV Annual Conference, August 31-September 4, 1993. Nashville, TN. Contact: (303) 756-8380.

XXIII International Ethological Conference, September 1-9, 1993. Torremolinas, Spain. Contact: (9) 57-480478.

15th World Congress on Neurology (WCN 93), September 5-10, 1993. Vancouver, BC, Canada. Contact: (604) 681-5226 - Donald W. Paty, MD.

Second International Congress on Peer Review in Biomedical Publication, September 9-11, 1993. Chicago, IL. Contact: (312) 464-2432 - Annette Flanagin.

AAZPA Annual Conference, September 12-16, 1993. Omaha, NE. Contact: (402) 733-8401 - Randy Wisthoff.

Nasal Toxicity and Dosimetry of Inhaled Xenobiotics: Implications for Human Health, September 20-22, 1993. Durham, NC. Contact: (919) 541-2070 - Dr. Fred J. Miller.

14th Annual Meeting of the American College of Toxicology, October 3-6, 1993. New Orleans, LA. Contact: (301) 571-1840.

American Association of Zookeepers, October 10-15, 1993. Atlanta, GA. Contact: (913) 272-5821.

American Association of Zoo Veterinarians (AAZA), 1993 Annual Conference, October 10-15, 1993. St. Louis, MO. Contact: (404) 993-2822 - Julie Fazollah.

4th International Lion-tailed Macaque Symposium, October 11-15, 1993. Madras, India. Contact: Registrar, CBSG-India, Box 1683, Peelameda, Coimbatore, Tamil Nadu, India. Fax: 91-422-572-123.

National Science Teachers Association, 1993 Western Area Convention, October 28-30, 1993. Denver, CO. Contact: (202) 328-5800.

Society for Neuroscience, November 7-12, 1993. Washington, DC. Contact: (202) 462-6688.

National Science Teachers Association, 1993 Midwestern Area Convention, November 11-13, 1993. Louisville, KY. Contact: (202) 328-5800.

Workshop on Eye Irritation Testing: Practical Applications of Non-whole Animal Alternatives, November 12-13, 1993. Washington, DC. Contact: Registration: (202) 371-2200 Fax: (202) 371-1090 - Carla Freudenburg or for information on technical aspects of the workshop: (301) 504-0994 - Dr. Kailash Gupta or (301) 344-5883 - Dr. June Bradlaw.

World Congress on Alternatives and Animal Use in the Life Sciences, November 14-19, 1993. Baltimore, MD. Contact: (410) 955-3343 - Dr. Alan Goldberg, Baltimore, MD, or 30-532-033 - Prof. Bert van Zutphen, Utrecht, The Netherlands.

National Science Teachers Association, Eastern Area Convention, December 16-18, 1993. Orlando, FL. Contact: (202) 328-5800.

National Science Teachers Association, 1994 NSTA National Convention, March 30-April 2, 1994. Anaheim, CA. Contact: (202) 328-5800.

Congress of the International Primatological Society, July 19-24, 1994. Bali, Indonesia. Contact: (202) 223-6971 - Dr. Soegardjito.

U.S. FOOD AND DRUG ADMINISTRATION
ANIMAL USE IN TESTING FDA-REGULATED PRODUCTS

Position Paper

Current laws administered by FDA – including the Federal Food, Drug and Cosmetic (FD&C) Act – are intended to ensure product safety and effectiveness, thereby protecting consumers' health. These laws place responsibility on FDA to ensure that human and animal drugs, biologics, and medical devices are safe and effective and that food products are safe and wholesome.

Animal testing by manufacturers seeking to market new products is often necessary to establish product safety. FDA supports and adheres to the provisions of applicable laws, regulations, and policies governing animal testing, including the Animal Welfare Act and the Public Health Service Policy on Humane Care and Use of Laboratory Animals. Moreover, in all cases where animal testing is used, FDA advocates that research and testing derive the maximum amount of useful scientific information from the minimum number of animals and employ the most humane methods available within the limits of scientific capability.

FDA advocates the use of validated non-whole animal techniques, which may include such screens and adjuncts as *in vitro* (e.g., tissue culture) methodologies and biochemical assays. As an example, FDA announced in the Federal Register of Feb. 19, 1988, the availability of guidelines for the Limulus Amebocyte Lysate (LAL) test as an end-product endotoxin test for human injectable drugs (including biological products), animal injectable drugs, and medical devices. The guidelines inform manufacturers of acceptable methods of validating the LAL test so that it can be used as an alternative to the rabbit pyrogen test. At present, many other procedures intended to refine, reduce, or replace animal testing are still in the relatively early stages of development.

With respect to cosmetic products, the FD&C Act does not specifically require that cosmetic manufacturers test their products for safety in the context of premarket approval by the agency. However, FDA strongly urges cosmetic manufacturers to conduct toxicological or other tests necessary to substantiate the safety of a particular cosmetic product. If the safety of a cosmetic product is not adequately substantiated, the product is considered misbranded and may be subject to regulatory action unless the principal display panel bears the statement "Warning – the safety of this product has not been determined."

Much of the attention given to animal testing has focused on the LD50 test and the Draize eye and skin irritancy tests. FDA does not require LD50 test data to establish levels of toxicity, and in 1988, published a policy statement in the Federal Register to clarify this position.

The Draize eye and skin irritancy tests continue to be considered among the most reliable methods currently available for evaluating the safety of a substance introduced into or around the eye or placed on the skin. Non-animal tests, such as *in vitro* tests, may be useful as screening tools to indicate the relative toxicity or safety of a substance that comes into contact with the eye or skin. However, the responses and results of *in vitro* tests alone do not necessarily demonstrate the safety of a substance. The effects of a substance on a biochemical reaction or on a specific cell or tissue in culture may differ from its effect on a specific organ system in the whole animal.

The precise nature of testing needed to determine the safety or effectiveness of a specific product regulated by FDA depends upon the characteristics and intended use of the product. More specific guidance may be obtained through consultation with FDA scientists on a case-by-case basis.

October 1992

What is the National Dairy Database (NDD)?

The National Dairy Database (NDD) is a collection of dairy-related educational materials, lists, and software tools accessible electronically. It is designed to assist those in the dairy industry by providing information, education, and support for decision making. This collection is national in scope and has been selected by top Extension specialists and other experts. The NDD is a valuable resource for producers, educators, consultants, veterinarians, the media, and others.

The National Dairy Database - version 1.0:

The National Dairy Database is available on CD-ROM disc. This disc creates a learning opportunity for the user through electronically searchable collections of full-text documents, executable software, and other useful support. The user may quickly do simple or complicated keyword searches or browse through titles or the full text of documents.

Factsheets or longer publications (some are 80 pages or more in length) may be searched quickly and read from the screen; sections of any length may be marked to be printed, or the entire publication may be sent to the printer. Factsheets may also be pulled to the user's word processing software for a fancier printed output or for editing and modifying the material for a specific use.

The user may also quickly find names and addresses of Extension specialists in all States as well as contacts in many private and public sector organizations and institutions by using the EXPERTISE DATABASE on the disc.

The user may access a SOFTWARE INVENTORY of computer software available from universities and other public sector agencies as well as private sector organization software that is available for purchase.

Forty-six computer programs or tools are available on the disc in executable form in the PROGRAMS section. These programs range from sophisticated expert systems to spreadsheets for Lotus or Super Calc. The programs may be copied to the user's hard disc and operated from there.

For further information on the National Dairy Database contact Terry Smith, chief editor, or Basil Eastwood, coordinator of the NDD:

Dr. Basil R. Eastwood
Program Leader-Dairy
USDA-Extension Service
Rm. 3334 South Bldg.
Washington, DC 20250-0900
Phone: (202) 720-6486
Fax. (202) 720-7714
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